CHASSIS Lubricate for SAFETY every 1,000 MILES LUBRICATION

The Institute Spokesman

Published by
NATIONAL LUBRICATING GREASE INSTITUTE

VOLUME II • NUMBER 11 FEBRUARY 1939

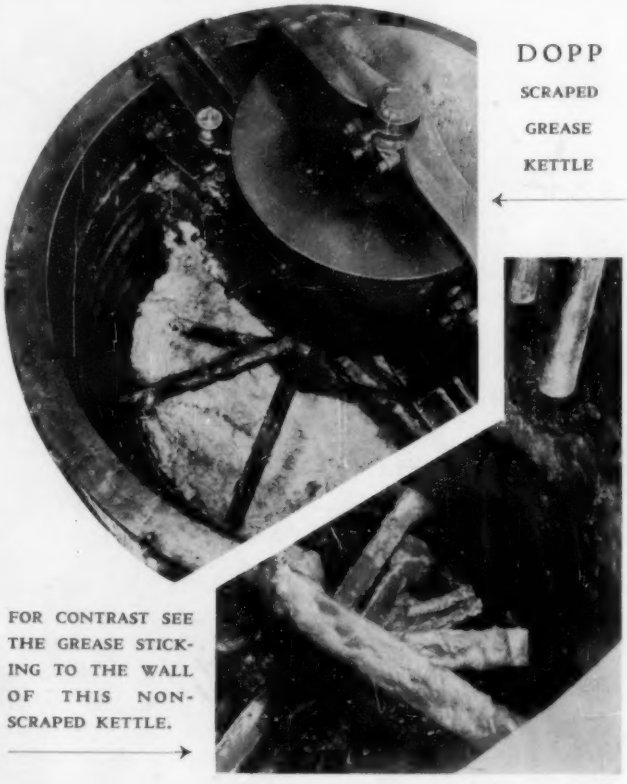
Cooling Aluminum Grease

by FRANK E. HUGGINS

SOWERS MANUFACTURING CO., BUFFALO, N. Y.

Kettles such as each of those illustrated on this page are to be seen in various grease plants. To even the casual observer it is obvious that the kettle which is continuously and postively scraped by its agitator will be easier to clean when changing from one kind of grease to another, also that less grease will remain in it to be worked over with the next batch, and that there will be less danger of making a lumpy product because positive-scraping will not let any soap stick to the hot wall of the kettle and dry out and then fall into the batch and make it lumpy. Many greasemakers, however, do not realize what important time-savings are to be made through positive-scraping — time-savings due to being able to heat or cool greases much more quickly. Petroleum, vaseline and paraffin, for which figures are available, are 14%, 113% and 83% as good insulators as asbestos wool, so it is evident that much better heat transfer will result if such materials, and greases having similar properties, are not allowed to stay on the jacketed surface of a kettle which they will effectively insulate from the rest of the batch.

Probably because of the insulating property of grease and the older plants lacking positively-scraped kettles, there developed the practice of cooling aluminum greases in shallow pans. In one plant which recently very courteously supplied data, they draw their hot grease into trays or pans which they fill to a depth of approximately 5″. It is their practice not to put the grease into cans or drums until its temperature is below 100° F. In winter, when their room temperature is from 60° to 70° F., it has taken 26 hours to cool to 90° F., 27 hours to 88° F., a third batch cooled to 86° F. in 34 hours, etc. But it is in summer that they have their real cooling troubles. Although theirs is a northern location, at one time when the average air temperature was only 75° F. it took them 48 hours to cool to 86° F., and they have left aluminum grease in cooling pans for as long as 60 hours. Think what the corresponding times for pan-cooling would be in the Southwest or on the Gulf Coast with air temperatures frequently 100° F. or higher! And for a large production, think what a large inventory of goods-in-process would be involved, and what a large area of cooling pans would be required!



DOPP SCRAPED GREASE KETTLE

FOR CONTRAST SEE THE GREASE STICKING TO THE WALL OF THIS NON-SCRAPED KETTLE.

Pan cooling not only requires a long time and a large floor space but it also requires considerable labor. In some plants the grease in the pans is shovelled around from time to time in order to make the cooling more uniform. Others do no shovelling during cooling, but skim off the top hard crust and put it back in the kettle with the next batch. The use of a filter may make this skimming unnecessary. However, there still remains the labor of shovelling the cool grease from the pans into a hopper supplying grease to the can-filling equipment.

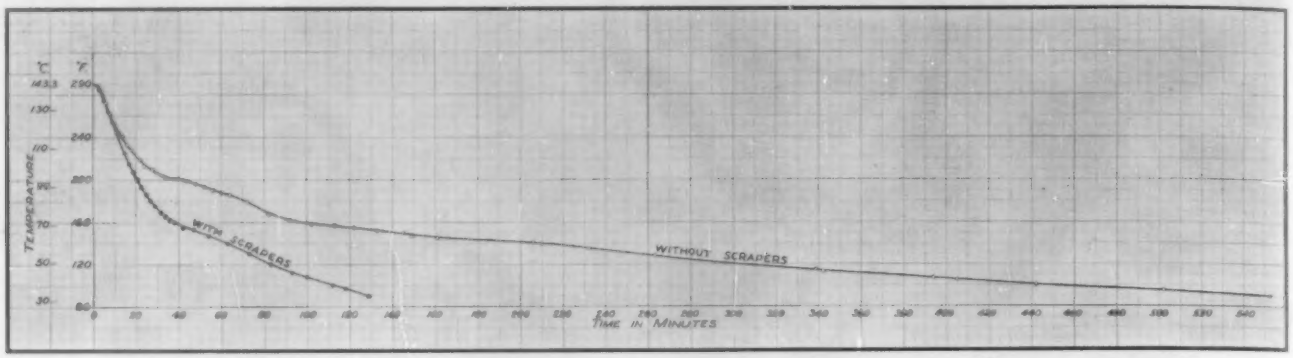
(Continued on page 2)

OFFICERS AND DIRECTORS

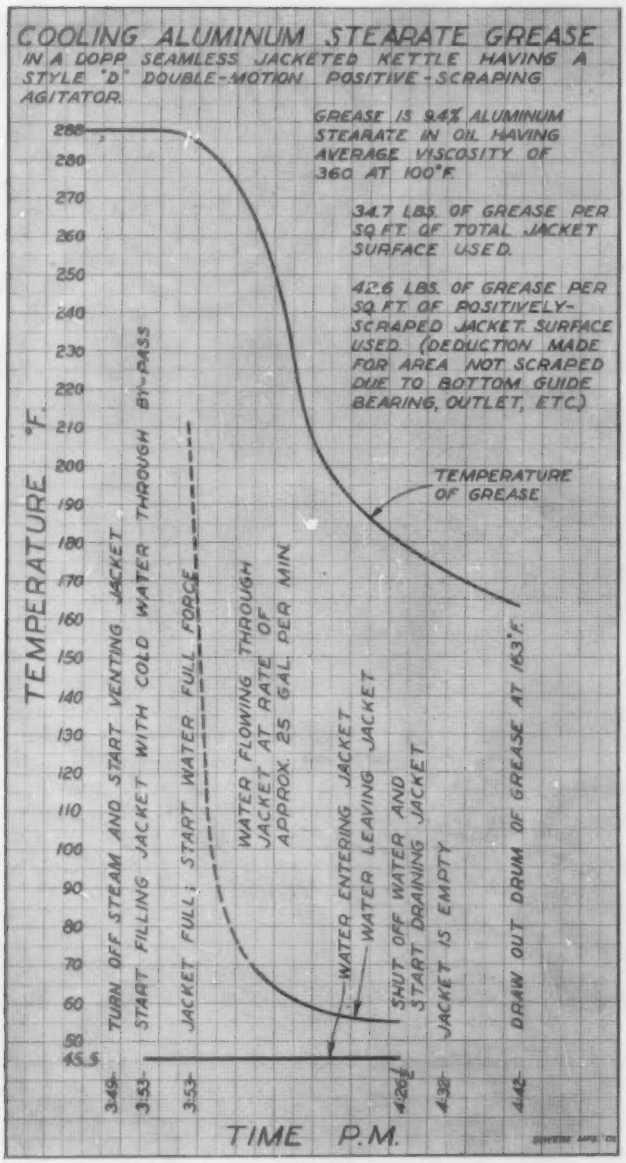
President: M. R. BOWER, Standard Oil Company of Ohio. *Vice-Pres. and Treas.:* E. V. MONCRIEFF, Swan-Finch Oil Corporation
Executive Secretary: G. W. MILLER, Topsall Lubricants Inc.

DIRECTORS

J. R. BATTENFELD, Battenfeld Grease & Oil Corp. W. E. CALLAGHAN, Motor State Oil & Grease Co. M. B. CHITTICK, Pure Oil Company
J. R. CORBETT, Cato Oil & Grease Co. C. B. KARNS, Standard Oil Company of N. J. F. C. KERNS, The Texas Company
L. P. LOCHRIDGE, Sinclair Refining Company WM. H. OLDACRE, D. A. Stuart & Company WM. H. SAUNDERS, JR., International Lubricant Corp.
F. J. SNYDER, Fiske Bros. Refining Company H. F. WILHELM, Socony-Vacuum Oil Co., Inc. R. H. PATCH, E. F. Houghton & Co.



COOLING MEDIUM CUP GREASE IN KETTLE WITH POSITIVE-SCRAPING AGITATOR COMPARED WITH COOLING IN SAME EQUIPMENT BUT WITH AGITATOR CLEARING THE WALL OF THE KETTLE BY $\frac{1}{16}$".


COOLING ALUMINUM STEARATE GREASE
IN A DOPP SEAMLESS JACKETED KETTLE HAVING A STYLE "D" DOUBLE-MOTION POSITIVE-SCRAPING AGITATOR.
GREASE IS 9.4% ALUMINUM STEARATE IN OIL HAVING AVERAGE VISCOSITY OF 360 AT 100°F.
34.7 LBS. OF GREASE PER SQ. FT. OF TOTAL JACKET SURFACE USED.
42.6 LBS. OF GREASE PER SQ. FT. OF POSITIVELY-SCRAPED JACKET SURFACE USED. (DEDUCTION MADE FOR AREA NOT SCRAPED DUE TO BOTTOM GUIDE BEARING, OUTLET, ETC.)
TEMPERATURE OF GREASE
TEMPERATURE °F.
TURN OFF STEAM AND START VENTING JACKET
START FILLING JACKET WITH COLD WATER THROUGH BY-PASS
JACKET FULL; START WATER FULL FORCE
WATER FLOWING THROUGH JACKET AT RATE OF APPROX. 25 GAL. PER MIN.
WATER ENTERING JACKET
WATER LEAVING JACKET
SHUT OFF WATER AND START DRAINING JACKET
JACKET IS EMPTY
DRAW OUT DRUM OF GREASE AT 163°F.
TIME P.M.

DATA FROM THE COOLING OF A PART SIZED BATCH OF ALUMINUM GREASE IN A LARGE SCRAPED KETTLE

Cooling Aluminum Grease —continued

The publication of data, such as that represented by the curves at the top of this page, showing that with a positive-scraping agitator, medium cup grease can be cooled from 290° F. to 90° F. in less than one-fourth of the time that is required when the agitator clears the kettle wall by only $\frac{1}{16}$", has been followed by progressive greasemakers applying this quick cooling to the manufacture of aluminum grease. With a 500 gal. positive-scraping mixer, which is jacketed to the 290 gal. level, one company located in the Southwest regularly cools a 2500 lb. batch of 3½% aluminum stearate grease from 220° to 250° F. down to 120° to 140° F. in approximately 90 minutes. For cooling they use water from a spray pond at a summer temperature of 70° to 80° F. Another company, located on the Gulf Coast, using the 1700 gal. full-jacketed positive-scraping mixer shown below, cools an 8000 lb. batch containing either 7% or 11% of aluminum stearate. Such a batch is cooled from 250° F. to 110° F. in 8 hours. Cooling water enters the jacket at approximately 75° F. Agitation with scraping of the kettle wall continues during cooling, and the cooled grease is drawn out of the kettle through a 5" flush-closing outlet.

While the foregoing data shows what can be accomplished when using relatively warm cooling water, there may be more interest in cooling with water at a lower temperature. The higher speed of such cooling is shown by the data in the chart at the left. It will be noted that the water entered the jacket at 45.5° F. and was allowed to run full force for only 27½ minutes. After a few minutes the flow of water could have been reduced considerably with probably a negligible effect on the rate of cooling, but was kept constant so that the data would be more useful for calculations of heat transfer.

The grease drawn out of the kettle at 163° F. was allowed to stand over night in a room at 50° to 60° F. and was ready for shipment the following day, saving at least a day as compared with slow cooling in a hot room.

ALTHOUGH USING WATER AT 75°F., THIS COOLS 8000 LBS. OF 7% OR 11% ALUMINUM STEARATE GREASE FROM 250°F. TO 110°F. IN 8 HOURS.

Material appearing in The Institute Spokes *be Re*

The INSTITUTE SPOKESMAN

Published Monthly by THE NATIONAL LUBRICATING GREASE INSTITUTE

GEORGE W. MILLER . . . *Editor*
498 Winspear Avenue, Buffalo, N. Y.

NEW MEMBERS

We are glad to welcome Joseph Dixon Crucible Co., Jersey City, N. J., as an active member and Owens-Illinois Can Co., Toledo, Ohio, as Associate Member.

SHIPPING CONTAINERS FOR ALL LUBRICANTS

•

The Draper Manufacturing Co.
Cleveland, Ohio

Attractive, Sturdy BENETCO Steel Drums and Pails
Build Good Will and Stimulate Repeat Sales.
WILSON & BENNETT MFG. CO.
Jersey City - Chicago - New Orleans

GREASE & OIL PACKAGES

•

For the Grease & Oil Industry

•

WACKMAN WELDED WARE CO.
ST. LOUIS, MO.

*Lastest Car Manufacturers Recommendations**

PACKARD OVERDRIVE TRANSMISSION

Packard Motor Car Company is attaching a warning signal to the filler plug on transmission overdrive cases that require an SAE 90 Hypoid Lubricant, the year round. In case the metal tag has been lost, the unit can be identified by a type letter. The letter has been painted near the filler plug and stamped in the metal near the drain plug. Units with a letter "H" and higher require Hypoid Lubricant. Those previous to "H" or without metal tag carry a recommendation of straight Gear Lubricant.

OIL FILTERS

Copyright 1939, CHEXALL Accessory BLUE BOOK.
(Reproduced by special permission)

1939 CARS HAVING AND NOT HAVING OIL FILTERS AS STANDARD EQUIPMENT

Make and Model	*Have Filter*	*No Filter*
American Bantam	....	X
Buick	....	X
Cadillac V-16	X	....
Cadillac (all others)	....	X
Chevrolet	....	X
Chrysler	X	....
De Soto	X	....
Dodge	X	....
Ford (all models)	....	X
Graham	....	X
Hudson	....	X
Hupmobile	....	X
La Salle	....	X
Lincoln V-12	X	....
Lincoln-Zephyr	X	....
Nash 6 & 8	X	....
Nash La Fayette	....	X
Oldsmobile	....	X
Overland	....	X
Packard	X	....
Plymouth P8	X	....
Plymouth P7	X	....
Pontiac	....	X
Studebaker	X	....
Willys	....	X

DIFFERENTIAL SERVICE DATA

Make	*Drain Plug*	*Rear Cover-Plate*
Buick	No	Bolted
Cadillac	Yes	Welded
Chevrolet	No	Bolted
Chrysler	No	Welded
De Soto	No	Welded
Dodge	No	Welded
Graham	Yes	Bolted
Hupmobile	Yes	Bolted
La Salle	Yes	Welded
Lincoln-Zephyr	Yes	No Cover
Nash	No	Bolted
Oldsmobile	No	Bolted
Packard	Yes	On Front Cover Plate
Plymouth	No	Welded
Pontiac	No	Bolted
Studebaker	Yes	Bolted

(Courtesy, Petroleum Marketer)

* Copyright Chek-Chart, Inc. Reproduction forbidden.

STATIC ELECTRICITY

Many car owners do not understand that static electricity is developed by friction between tires and road surfaces, or between tires and tubes, etc., and that this apparent loss of electricity is *not* due to a leak in the electrical system used on the car itself. Therefore, when a static discharge condition is noticed there is not much that can be done to overcome it, but the point is — don't jump to the conclusion that there is a leak in the electrical system on the car.

*The New Car Owner**

How natural it is for every new car owner to take pride in not only keeping the outward appearance of his new car looking attractive but also to attempt diligently to see that it is properly serviced. The average new car owner reads thoroughly the manufacturer's Owner's Manual, which accompanies the car at time of delivery, and resolves to follow the instructions exactly as given.

Since practically all car manufacturers recommend that the original Crankcase Oil, delivered with the car, be drained at the end of the first 500 miles, the new car owner will undoubtedly resolve to have this done. The first 500 miles roll around, however, much sooner than realized, so here is

(Continued on page 4)

* Copyright Chek-Chart, Inc. Reproduction forbidden.

Chek-Chart
AUTOMOTIVE LUBRICATION ENCYCLOPEDIA
Recognized Headquarters for Authentic Automotive Information
The Chek-Chart Corporation
624 S. Michigan Ave. Chicago, Ill.

be Reprinted Without Special Permission.

The New Car Owner—continued

a chance for the service station attendant to take a glance at the speedometer reading whenever a new car drives in for gasoline. If the speedometer shows anywhere between 450 to 600 miles, a crankcase drain and refill should be solicited. It will mean more money in the cash register for you, and the reminder will probably be appreciated by the car owner.

Many owners are still from what is termed the "Old School." By that is meant —they are "old timers" back of the steering wheel. Not so many years ago these "old time" drivers had a good habit of boasting about the pains they took to "break in" their new cars. They not only traveled 25 miles per hour or less for the first 500 miles, 35 miles per hour for the second 500 miles, and then not over 50 miles per hour for the next 1,000 miles; but would also have the crankcase drained and refilled every 500 miles. Many of these "old timers" still follow their early training, maintaining that by so doing the oil consumption would never be excessive, regardless of age of the car or mileage driven.

There is undoubtedly a lot of merit in the "Old School" theory. The extra three crankcase drains and refills during the first 2,000 miles may cost a total of from 4 to 5 dollars but the pleasure of operating the same car for several years without continued increased oil consumption is worth the price. The service station man can truthfully relate this "Old School" theory to new car drivers. It will undoubtedly increase Engine Oil sales, and the cash register will ring again.

After all, the "Old School" theory is not so much out of line with some car manufacturer's current recommendations. We quote from a 1939 Owner's Manual:

SPEED:

Up to 400 miles—not to exceed 40 miles per hour.

From 400 to 600 miles—not to exceed 45 miles per hour.

From 600 to 800 miles—not to exceed 50 miles per hour.

From 800 to 1,000 miles—not to exceed 55 miles per hour.

After 1,000 miles somewhat higher speeds may be used for SHORT DISTANCES, after the engine has been warmed up by 15 minutes driving at lower speeds. Sustained high speeds should be avoided during the first 2,000 miles.

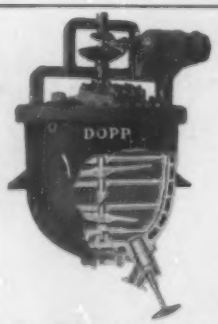
Similar instructions appear in practically each car manufacturer's Owners' Manual which is usually enclosed in the glove compartment on the instrument panel.

The manufacturer's recommended intervals between crankcase drains were gradually extended from year to year up to 1938. The 1939 drain period remains practically the same as recommended in 1938. Regardless of the extended periods between drains recommended, the majority of car manufacturers state that their recommendations are for *normal* operations and that under conditions of cold weather driving, numerous starts, excessive choking, rich mixtures, imperfect ignition, excessive carbon and excessive dust conditions, the oil should be drained at more frequent intervals—sometimes every 500 miles is none too often under adverse operating conditions.

A car owner will appreciate the service station man calling his attention to any unusual operating conditions that would tend to contaminate the oil in the crankcase to a point where it would be inadvisable to continue its further use.

Here are some valuable instructions about crankcase oil and new cars:

1. Drive at moderate speeds the first thousand miles. It certainly will not hurt the car and it will give pistons, bearings, etc., a chance to "polish off," insuring long life and quiet operation.
2. Change oil at the end of the first 500 miles and again at 1,000 miles. This will drain off the tiny metal particles that are worn off by new metal rubbing together.
3. Do not drive fast until the engine has warmed up to operating temperature.
4. Do not warm up the engine by racing it idle. A few minutes of this abuse causes more wear than 10,000 miles of normal operation.
5. Drain oil when hot and immediately after engine has been running. This will drain off any metal particles, dirt, etc., before they get a chance to settle to the bottom.
6. The difference in cost between good oil and poor oil is slight. The service rendered by the different oils is very great.
7. Advise flushing when oil is changed or at least every other time.
8. Be sure to fill to exact level checked with gage. If recommended quantity overfills the crankcase, there may be sludge remaining in the crankcase.
9. Remember that a few extra dollars spent on a new car will save expensive repair bills in the future.
10. Tell the new car owner about these important servicing instructions. It will build up confidence and repeat business.



DOPP
positively-scraped
GREASE KETTLES
and
PRESSURE MIXERS
SOWERS MANUFACTURING CO.
1295 Niagara St. Buffalo, N. Y.

LITHOGRAPHED GREASE *and* OIL PACKAGES
Steel Pails...Grease Cans... Kerosene Cans...and Lubricating Oil Containers...from one dependable source.
OWENS-ILLINOIS CAN CO.
TOLEDO • OHIO

CONTAINERS
Quality Packages for Your Products
National Enameling & Stamping Co.
Milwaukee Granite City

LUBRICATE FOR SAFETY EVERY 1000 MILES